

# Polygyny in the Seychelles Sunbird *Nectarinia dussumieri*

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The Seychelles Sunbird *Nectarinia dussumieri*, despite being the most numerous and widely distributed of the endemic landbirds of the Seychelles islands, was until recently absent as a breeding species from Aride Island, the northernmost of the granitic islands of the Seychelles archipelago. It is uncertain when the Seychelles Sunbird became extinct on Aride or even whether Aride ever had a breeding population of the species. Oustalet (1878) (cited in Greig-Smith 1980) recorded the species on Aride, and Vesey-Fitzgerald (1936) mentioned sunbirds on Aride although he made no reference to breeding. However, Diamond & Feare (1980) suggested that Aride had never been colonised by the Seychelles Sunbird since no specimens had ever been traced from the locality. Greig-Smith (1980) implied that sunbirds had been present on Aride sometime during the late 1970s although Proctor & Feare (1972) could not find the species on a visit in 1972. Warman & Todd (1984) stated that the Seychelles Sunbird had become extinct on Aride this century. Most historical evidence, therefore, suggests that Aride did hold a breeding population of the Seychelles Sunbird.

In recent years, small numbers of sunbirds have been present on Aride since at least 1987 (I. Bullock unpubl.), including one female originally ringed on Cousin Island 20 km to the south of Aride (J. Komdeur pers. comm.). The first successful breeding attempt for at least twenty years was not recorded until October 1992 (C. Taylor unpubl.). A programme to monitor the development of the population was started in November 1993 and continued until November 1994 when the author left the island.

Greig-Smith (1980) and Owen & Bresson (1987) state that the Seychelles Sunbird is a territorial species, each breeding pair defending a small area within which nesting and most foraging takes place. On Aride, a ringing programme in which birds were ringed using a unique two-colour ring combination on one leg and a numbered alloy ring on the other enabled territory boundaries to be mapped and allowed the movements of individual birds to be followed. By the end of the study, 75% (12) of the estimated population (16) was ringed. The immediate vicinity of the nest-site was found to be the part of the territory most vigorously defended by both sexes against other sunbirds, and it was found that in most cases the feeding ranges of territorial birds overlapped. It is therefore probably best to say that on Aride, at least, Seychelles Sunbird pairs have non-exclusive home ranges within which a small territory is defended. It was also found that female sunbirds showed remarkable nest-site fidelity, so that the location of the small territory within the home range probably remains largely static. The study methods involved mapping the distribution of individual

sunbirds to determine home ranges, locating nesting territories within each home range and recording incubation and chick provisioning rates. At the beginning of the study, most sunbird activity took place on the small (7 ha) coastal plateau, and it was determined that there were three home ranges on the plateau each holding a breeding female. Initially only two of the breeding females were ringed and two males. One male and one female were unringed, but all three nesting territories contained at least one ringed individual.

After following breeding cycles in all three nesting territories, it was found that one of the ringed males was paired with the two ringed females in adjacent home ranges. In one nesting territory, the male was seen regularly feeding an unfledged chick, and in the other the same male was seen defending the nest in which the second female was incubating. The two nest-sites were 75 m apart. The second ringed male was monogamously paired with the unringed female, and the unringed male was without a mate. As the study period progressed, sunbirds started to colonise Aride's hill woodland. In November 1994, nesting was discovered in the hill woodland, where the previously monogamous ringed male from the plateau was paired with a second female. This male's two nesting territories were approximately 300 m apart and the male was seen regularly defending both territories. In one case, the male was seen feeding an unfledged chick in the hill territory and within 30 minutes was seen defending his plateau territory.

Male Seychelles Sunbirds typically play little role in the breeding cycle. Incubation is carried out solely by the female, as is the majority of chick feeding (Greig-Smith 1980). On Aride, the two polygynous male sunbirds delivered 16% ( $n=111$ ) of the food items fed to their unfledged chicks. Monogamous males were not seen taking part in chick provisioning. The two polygynous birds between them fathered 70% ( $n=10$ ) of the chicks that fledged over the study period.

Despite two intensive studies (Greig-Smith 1980, Owen & Bresson 1987), polygyny has not previously been documented in Seychelles Sunbird populations.

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